ISSN 2720 - 9644 (print)
ISSN 2721 - 0871 (online)
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DE-ESCALATING IMPACT OF STUDENT SUPPORT IMPEDIMENTS IN TURBULENT ENVIRONMENT BY INTEGRATING TECHNOLOGY INCLINATION WITHIN OPEN DISTANCE AND E-LEARNING CONTEXT

Volume: 5
Number: 3
Page: 652 - 665

Article History:
Received: 2024-03-31
Revised: 2024-04-13
Accepted: 2024-05-17

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Abstract:
This study explains the transition from a conventional teaching and learning mode of delivery into an open distance and e-learning blended delivery method. The researchers analyze the constraints and hindrances that catapult the sustainable implementation of this existential and contemporary transition. The fundamental objective is a predicated seamless transition integrating requisite digital and technology-oriented learner resources and capabilities from a socioeconomic perspective. A positivist paradigmatic stance and philosophy within quantitative inquiry methodology, guided by the positivist philosophical framework, was undertaken, and a research instrument based on descriptive examination was answered by approximately 212. The findings indicate diverse insights regarding student characterization in the current transition by illuminating inequalities amongst students in terms of digital resources and online infrastructure access. The implication of the inquiry reiterates the bespoke prioritization by the pedagogical decision makers of digital resources and a conducive environment for the learner experience and success in reaching their dreams. Second, the inquiry illuminates the significant prioritization of the social capital inequalities that characterize the students within the higher learning community of practice. Future related studies will investigate intangible constraints such as students' behaviors, intentions, motivations, and orientations in a transitory era.

Keywords: Open Distance e-learning, student support, digital resources, internet accessibility

INTRODUCTION

The reality of ODeL is currently predicated on the booming investment and embeddedness of digital technologies. This investment requires substantial monetary resources from the decision-makers and authorities within the higher learning institutions (Bates,2015). Various challenges in the execution of ODeL are both exogenous and somewhat endogenous. The continued disruptions in the power supply due to load shedding have also resulted in internet access interruption, which is critical for the learning environment to thrive from both the learner's and the teacher's standpoint (Sevnarayan & Mohale, 2022). While the police crime statistics also pontificate that the communities ought to be on high alert as the crime levels skyrocket, the neighborhoods within our communities are subjected to persistent darkness. The noted lack of infrastructure, access challenges, socioeconomic disparities, and the outcome of myriad challenges impede successful T&L processes (Majola & Mudau, 2022).

South Africa, as an emerging market and a developing economy, is also confronted with high levels of mismanagement, maladministration, and fruitless and wasteful expenditure, wherein these resources could have been better channeled to benefit the broader pedagogical community of

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practice (Mgutshini et al., 2021). The consolidation and synthesis of digital, financial, pedagogical, institutional, and society-driven logistical resources are fundamental if the constructive interventionist mechanism of distance learning within the turbulent environment is to be successful and sustainable (Bates, 2015). The paradigm shift experienced within the academic parameter by students, teachers and administrators warranted a re-focus in the manner that the academic execution value chain be reimagined within the auspices of the hybrid and blended learning scenarios (Babbar & Gupta, 2022).

Consistent and systematic consultation with the academic stakeholder community, including students, became the order of the day to quell uncertainty fires (Lapitan et al., 2021). The matters are exacerbated in those areas where the students originate from historically disadvantaged areas, such as rural precincts, townships and informal settlements, with a long history of infrastructure shortages. In a study undertaken in the developing economic environment by Oyedotum (2020), it transpired that the proactive acknowledgment of challenge due to force majeure is the proper mechanism for debunking and de-risking the inherent risks explicitly encountered in the academic scenario. The probabilities seemed stacked against the students' academic journey during the turbulent environment due to external shocks and headwinds from the e-learning or research perspective, as articulated by (Paudel, 2021).

The disconnect between the policymakers, the academic community, the corporate sector and civic organizations or special interest groups within the context of inclusive leadership, as opined by Ganon-Shilon, Finkelstein, Sela-Shayovitz, & Schechter (2022) in advocating academic justice, could have been improved in the amelioration of the students' hindrances and constraints in their journey to academic excellence during the turbulent environment. A variety of student communities from far-flung areas within impoverished inhabitants or settlements who had impediments in access to the Internet, inadequate monetary affordability, and scarcity in accessing online textbook material had to receive intervention from government infrastructure resources such as municipal and public libraries, which ought to have been facilitated by policymakers and authorities (Agu et al., 2021).

For authorities and decision makers within the pedagogical space makers, the acquisition of educational and technological resources by the academic stakeholder community system quality should have accountability and responsibility. As the legitimate trait and an important selection criterion, most specifically during the turbulent environment, these protocols tend to be overlooked, resulting in transgressing the procurement legislation and short-circuiting the legitimate procedures (Fearnley & Amora, 2020). Reaper and Brown (2020) accentuated the significance of student support mechanisms to needy students and those from low-income community circles. The agility during a crisis within learning students' experience poses diverse ramifications, and contingency plan execution has mitigated adversarial calamities specifically within the blended and e-learning has been eloquently narrated by (Bouchey et al., 2021). The agility and adaptation to a crisis within learning student's experience posit different connotations due to the diversity of student demographics in a society like South Africa; contingency plans execution has mitigated the adversarial calamities specifically within the blended and e-learning (Bouchey et al., 2021).

Modern-day learners are highly motivated and prone to effortlessly construe and decipher IT-oriented learning platforms, which have been accelerated by the ubiquity of social media and hosts of electronic devices within the broader digital environment (Kasim & Khalid, 2016). The combination of individual factors-oriented theory, namely the theory of reasoned action and more refined theories of planned behavior, facilitated derivation of comprehension in the manner individuals exude their conducted within the technologically inclined parameters, culminating in alignment with the Technological Acceptance Model (TAM) (Marangunić & Granić, 2015).

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Technology Acceptance Model (TAM) Integration: The TAM origins can be traced back to the contributions of the brainchild of Davis (1986), which relates to the successful assimilation of technologically inclined problem-solving and cogent systemic decision-making. TAM has been widely used to understand the acceptance and use of technology in various contexts, including education (Marangunić & Granić, 2015). Furthermore, perceived usefulness and ease of use are the two main factors influencing an individual's intention to use technology (Davies, 1986). Perceived usefulness refers to the degree to which an individual believes using a particular technology will enhance performance. In the context of ODeL, perceived usefulness could be influenced by factors such as the quality of the online content, the effectiveness of the teaching methods, and the perceived benefits of ODeL compared to traditional face-to-face learning (Baturay et al., 2017). On the other hand, perceived ease of use refers to the degree to which an individual believes that using a particular technology will be free of effort. In the context of ODeL, perceived ease of use could be influenced by factors such as the user-friendliness of the online platform, the availability of technical support, and the individual's prior experience with similar technologies (Kasim & Khalid, 2016).

The elements and components that could be described as bricolage in terms of resources and tools of orientation for both the learner and the educator are technologically driven and equipped with the requisite processes, procedures and systems that encapsulate perceptions, self-efficacy, principles and instructional and learning objectives or outcomes (Baturay et al., 2017; Siyam, 2019). Learning Management Systems provide tools and functions like course management tools, online group chats and breakaway room discussions, assessment in an e-learning mode, provision of real-time feedback, pre-empting latency precipice, reigniting the user or students' enthusiastic instinct to espouse participatory behavior, learning repository organization, formative and summative evaluations and rubric formalization (Al-Nuaimi & Al-Emran, 2021). The ultimate grading and student evaluation report mechanism and peers' evaluations are seamlessly expedited in conformance with the dictates of the pedagogical architects of T&L (Fathema et al., 2015).

In addition to these factors, the literature also suggests that environmental factors can significantly impact the effectiveness of ODeL. For example, Fynn and Mashile (2022) highlight infrastructure and access challenges in implementing successful ODeL, particularly in developing economies like South Africa. Similarly, Al-Nuaimi and Al-Emran (2021) advocate that environmental constraints, such as load shedding and connectivity issues, can significantly impact access to information and communication technology (ICT) devices and operations. The literature further submits that digital technologies can enhance student engagement and participation in the learning process Baturay, Gökçearslan, & Ke, 2017. However, achieving this requires more than just the availability of technology. It requires developing engaging and interactive online teaching methods and creating a supportive and inclusive online learning environment (Fathema et al., 2015).

Institutional Theory: While higher learning institutions' ultimate objective is to provide the pedagogic and academic journey for learners in a successful and seamless context and environment, the external and exogenous factors might have a thing or two in putting the spanner amongst the works. The institutional theoretical framework will be the one under the microscopic in attempting to connect the pieces of the puzzle within this area of the fourth industrial revolution that is characterized by, amongst other things, the Internet of Things (IoT), cloud computing, big data, social media, artificial intelligence and the general permutations in the ever-evolving web 4,0 space (Sanz-Valle et al., 2011). The scholars have undertaken a discourse analytical framework of the institutional theory within the precepts of political, economic, social, technological, and legal ground dispensation, namely the cognitive, normative and regulatory dimensions precisely within the curriculum assimilation (Hinrichsen & Coombs, 2014).

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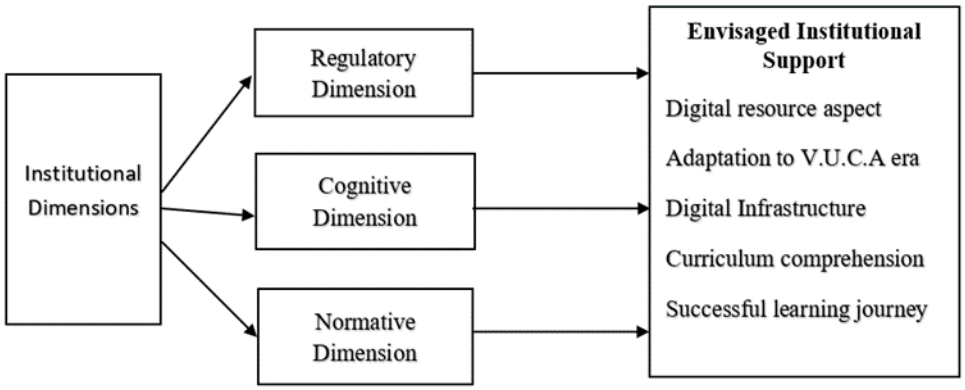
In a study by Aviram and Eshet-Alkalai (2006), Figure 1 further elucidates some of the implementations of the digital-literacy-orientation challenges juxtaposed with the institutional provisions aligned with digitally theoretical underpinnings.



Source: Researchers adapted from (Scott, 2003)

Figure 1. Institutional Theoretical Dimensions

The behavioral dimension: How can learners comprehend, apply and analyze digital-oriented literacy in terms of their behavioral attributes within the normative–inclined institutional context in the broader ODeL academic fraternity? This dimension will dovetail with the normative dimension of the institutional theory as it encapsulates the expectations, standards and norms that the higher learning institution can package and present itself within the turbulent environment.

The psychological-neurological dimension: What cognitive, attitudinal, emotional, and neurological intricacies are at play within the student's idiosyncratic repository equated with cognitive learning elements, which are commensurate with digital literacy? The institutional dimension of the cognitive theoretical lenses within social context has knowledge acquisition and sharing embedded in pedagogical and didactic fraternity borrows some of its logical arguments from the cognitive theoretical trials (Bandura, 2004; Nabavi & Bijandi, 2012).

The psychological-governing profile: What individuality factors are most prevalent in the learners' expected actions, interactions, reactions, and rules within the digital literacy context? The third pillar of the institutional theory, namely the regulatory component, complements this orientation where the rule of engagement by the parties involved, in this instance, the students, the educators and the support staff within the higher learning institution within policy, pedagogical and research perspective (Lankshear & Knobel, 2015).

METHODS

The study adopted a positivism-oriented data collection method that is theory testing and deductive-oriented in explaining and predicting the desired outcomes, as well as the relatable generalization synonymous with the quantitative data collection methodology (Creswell & Creswell, 2018). Saunders (2019) posits that positivism is a scientific method encapsulating, firstly, ontology (acquisition of knowledge), secondly epistemology (nature of reality in a natural and social setting) and thirdly, axiology (significance of value and evaluation) by capturing the explanation and predictability of the phenomenon represented by observable and measurable variables. A research measurement was undertaken by about 212 participants for data collection tool with Likert 5-scale (Strongly agree – to the symmetrically opposed strongly disagree) was implemented in

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quantifying the participant's responses in answering pre-structured questions, which is synonymous with a deductive orientation (Cresswell & Plano, 2018). In this research, the validity in terms of the plausibility, quality and accuracy in the management of data was executed by cross-examining the reliability of the extent to which the instruments are construed to be consistent with what is espoused to measure (Terwee et al., 2016).

RESULT AND DISCUSSION

Some of the findings will be encapsulated with the following questions below. The study incorporates the aggregate quantity of seven (7) research questions in the primary research. The sample is aligned to the sample size determination versus the population of the analysis unit and will comprise 215 respondents. Table 1 is a descriptor of the circulated questions and response options, while Figures 2 to 8 present a statistical account of the received responses.

The responses from the participants provided valuable and first-hand insights into the challenges and opportunities of ODeL in a turbulent environment. The first question of this study asked the students to classify the degree to which the T&L modes they have experienced encouraged active participation during learning sessions. Student participation in this context refers to the rate at which students intentionally engage with study material, fellow students, lecturers or tutors (El-Sabagh, 2021). Figure 2 illustrates that 73% agreed and 27% disagreed.

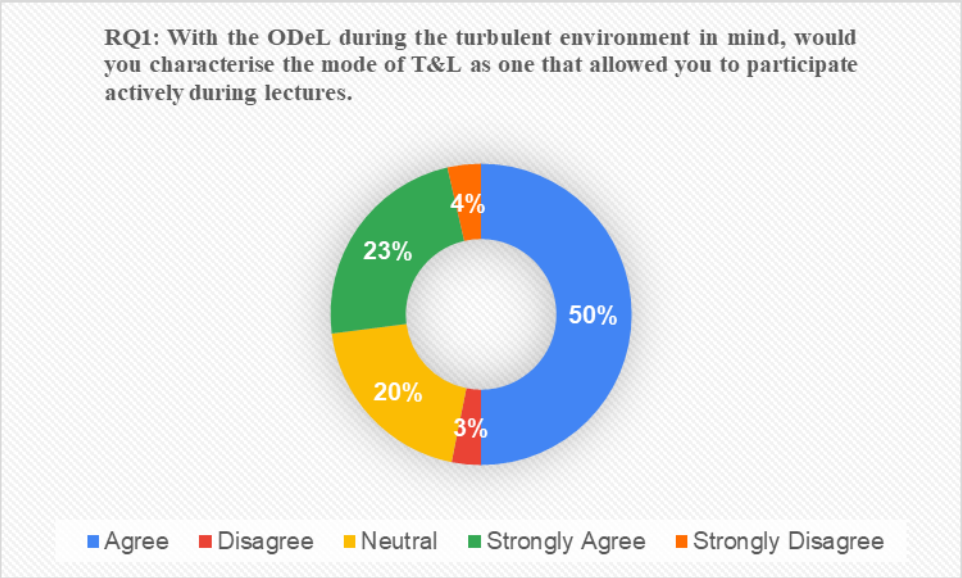

Figure 2. Student's Characterisation of T&L Mode that Enabled Active Participation

These results show that digital technologies can enhance student engagement and participation in the learning process (Baturay et al., 2017). They resonate with literature that argues that one of the key benefits of e-learning is the production of constructive learning outcomes due to the excellent quality of education emanating from the students getting an opportunity to actively participate at any time during the learning session, in any place they are located without feeling disconnected or isolated (Lee et al., 2019; Barkley & Major, 2020). However, the 27% of neutral and disagreeing responses indicate room for improvement in facilitating active participation, possibly through more interactive and engaging online teaching methods. Consistent with Nkomo, Daniel &

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Buston (2021) call for a holistic approach to student engagement, which caters to the social, emotional and cognitive student engagement needs in ODeL.

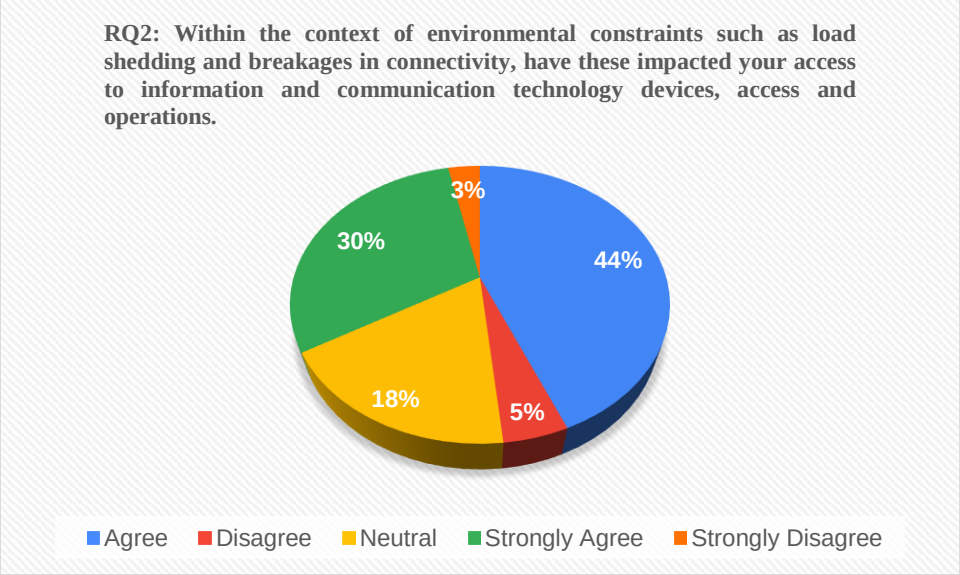

Figure 3. Impact of Environmental Constraints on Student's Access to ICT

When questioned on the extent to which environmental constraints affected students learning, Figure 3 shows that 74% of the respondents agreed that several environmental factors disrupted their learning processes. These findings echo the literature highlighting infrastructure and access challenges in implementing successful ODeL, particularly in developing economies like South Africa (Jaffer et al., 2007). Such learning depends on resource availability or lack thereof, given that accessing learning material or sessions requires data and network coverage, which are reported to be significantly affected by load shedding and shortage of ICT infrastructure, primarily in small towns or rural areas (Gumede & Badriparsad, 2022). This finding underscores the need for robust infrastructure and reliable connectivity to ensure the effective delivery of ODeL. Congruent findings in literature where interruptions on accessing academic platforms and online assessments are challenged by dilemmas such as the high cost of data and power instabilities, which can temper the performance or psychosocial stability of the students (Azionya & Nhedzi, 2021; Otu et al., 2023).

Classifying no positive or negative impact of infrastructural or environmental factors on learning, 18% were neutral to this question. However, 5% disagreed, 3% strongly disagreed, and 8% disagreed, indicating that external factors did not affect nor disrupt their learning processes. This collaborates with the current reality of inequality confronting South Africa, where instabilities and structural or capability problems constrain most of the population. At the same time, a minority remains limitedly vulnerable to the adverse effects. (Gore & Walker, 2020; Visagie & Turok, 2021). In contrast, a minority of the student community is capable and resourced to overcome barriers and access (Francis et al., 2020; Adedoyin & Soykan, 2023; Betthäuser et al., 2023) For instance, the student's readiness or preparedness for learning online or digital skills proficiency, and individual self-directness or commitment to their studies can assist in navigating around the challenges and organize their time and tasks proactively and in anticipation of problems (Joosten & Cusatis, 2020).

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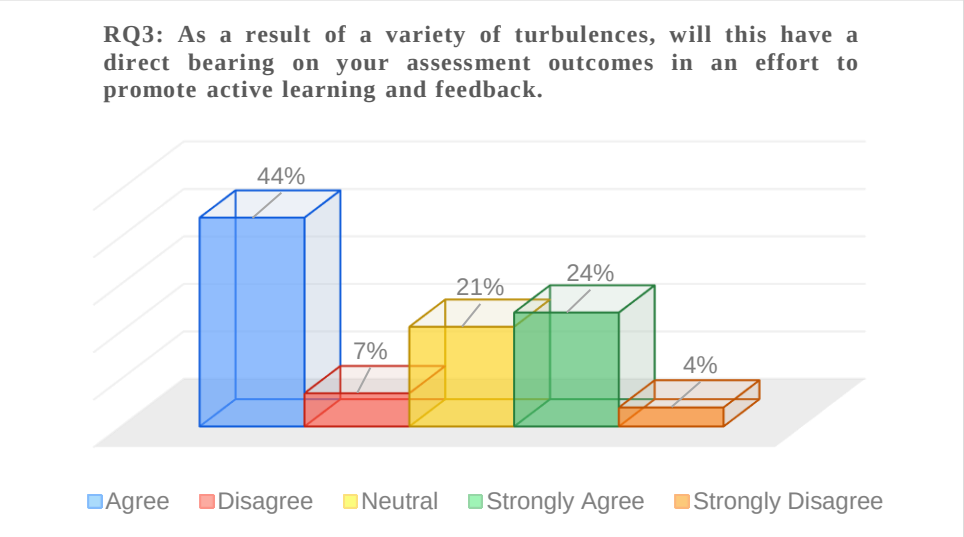

Figure 4. Impact of Diverse Turbulences on Students' Assessment Outcomes and Active Learning

Exploring the impact of various turbulences on assessment outcomes to promote active learning and feedback, again, as reflected in Figure 4, a significant majority of 68% of respondents agreed or strongly agreed that these turbulences directly affect their assessment outcomes. These findings are consistent with the literature suggesting that environmental factors can significantly impact the effectiveness of ODeL and student performance (Al-Nuaimi & Al-Emran, 2021). In previous studies, ODeL students have raised burdensome infrastructural issues leading to late or missed submissions, missed online quizzes or assessments and the unkindness of the university systems and staff in accommodating or tolerating such issues (Khalil et al., 2020; Mamnuah & Wantonoro, 2022). The 21% neutral, 7% disagreeing and 4% strongly disagreeing participants indicate that, once again, some participants' engagement with learning material remains unaffected despite the various turbulences and instabilities.

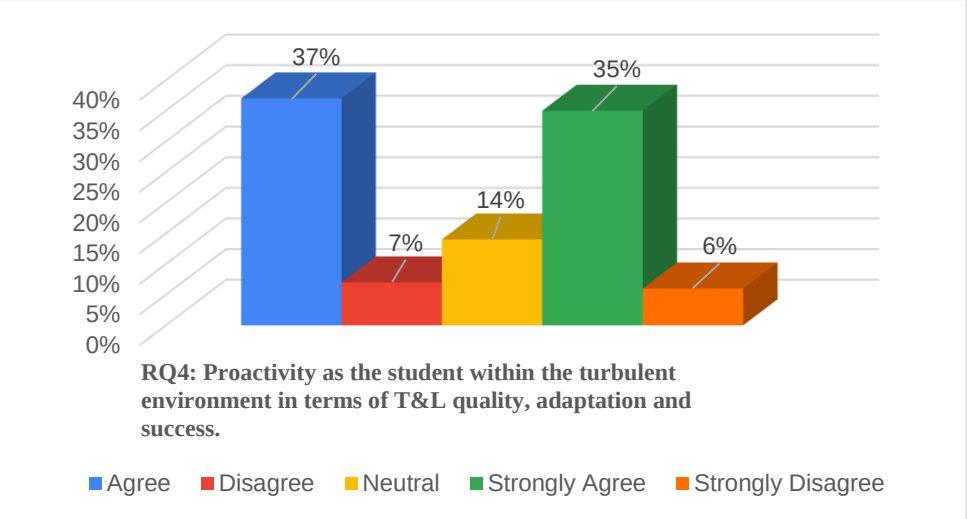

Figure 5. Student's Proactivity on ODeL within the Turbulent Environment

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As displayed in Figure 5, regarding the student's proactivity toward learning amidst various shocks and instabilities, the agreeing categories amounted to 72%, while 14% remained neutral, leaving 13% in disagreement. Sharing similar sentiments, Chai, Hu and Niu (2022) reflected that the personality traits of the students, primarily those associated with environmental elements of online learning, are confluent and determine their productivity and proactive behavior. In this manner, greater motivation to learn, to engage with course material and in ODeL, self-motivation, discipline and responsibility enable students to adapt, succeed and rise above the magnitude of challenges (Liu et al., 2019), resonating with Maphosa and Bhebhe, 2019 (p. 191), who argued that "learning is a process that occurs within nebulous environments of shifting core elements not entirely under the control of the individual."

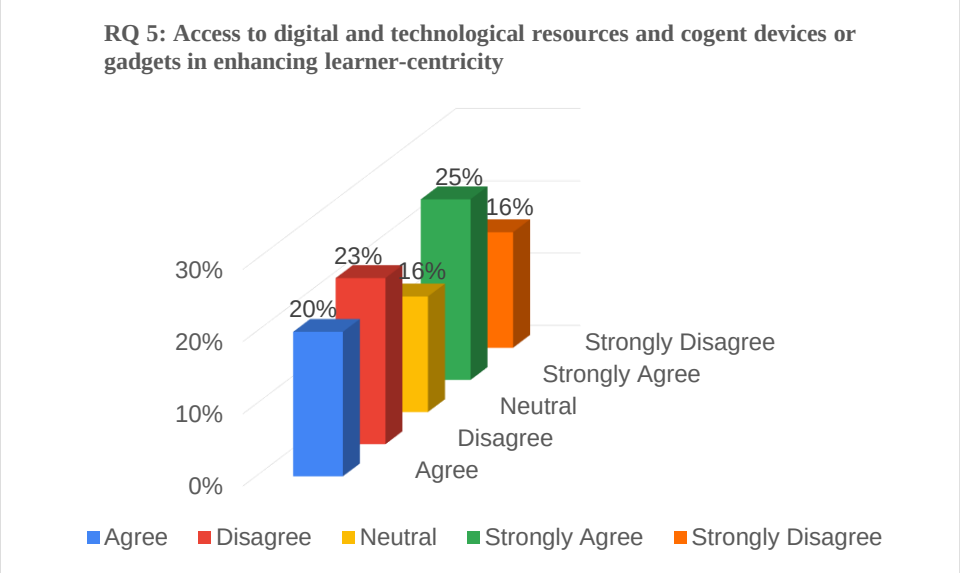

Figure 6. Student's Access to Learning Digital Technologies

ODeL warrants digital and technological resources as they are at the heart of online learning; on this factor, results from the participants, as presented in Figure 6, show that 45% agreed and 39% disagreed, leaving 16% neutral on this factor. Similarly, Oyedemi and Mogano (2018) argued that online or distance learning requires students to be financially capable of attaining material such as personal computers and smart devices, be able to use the Internet at home or travel to cafés or libraries with Internet and also be skilled on using these digital learning tools.

The close split in the results collaborates Ndzinisa and Dlamini (2022) caution against a silo view of online and distance learning primary focus on accessibility to resources without acknowledging responsiveness factors despite knowledge of the unevenness of digital infrastructure that supports digital resources. Therefore, initiatives to enhance the effectiveness of learners need to keep in mind that as much as ODeL offers access to higher education without physical, social or geographical bounds or exclusions, it does so against the backdrop of deep and significant digital and ICT access disparities (Lembani et al., 2020).

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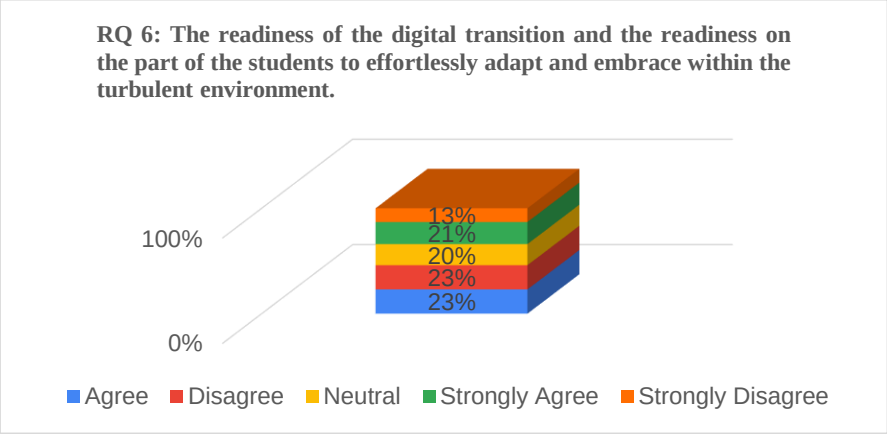

Figure 7. Student's Readiness During the Transition from Contact to Digital Learning

The question of the converging between digital transformation and students' readiness and willingness to embrace change resulted in a close split of views across the five rating categories. Interestingly, 23% of the participants equally agreed and disagreed, 21% strongly agreed, yet 20% were neutral, leaving 13% strongly disagreeing on the questioned intersection between digital transition and student readiness for continued learning amidst turbulences.

For the first time in the history of the University of South Africa, this ODeL institution transitioned from physical assessments to online in May-June 2020, leaving this institution with an expectation to facilitate more than 1.3 million assessment submissions in that period (van den Berg, 2020). An example of the significance of equal efforts between institutional transitions and student's reception, adoption and embrace of these changes within challenging shocks is found in van den Berg's (2020, p.8) study, whereby a student shared that they "have been struggling with everything, mostly because in my home I do not have electricity. Added to this is a poor network connection. Consequently, I wrote one of my examinations at a mountain which is 3 km away from my home. I am frustrated as I cannot afford to rent a place in town to access electricity and a good network connection. Recently, I had to write my examination late as the network connection was slow".

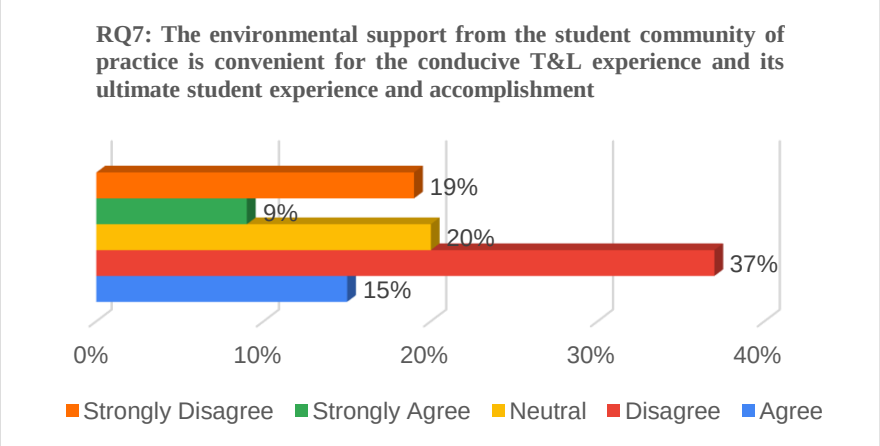

Figure 8. Environmental Support Among the Student Community Towards Effective ODeL T&L Experience

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When questioned on the helpfulness, significance or contribution of peer support on the participant's learning journey, as reflected in Figure 8, the majority of the participants selected against the question, with 37% disagreeing, 19% strongly disagreeing, and 20% neither agreed nor disagreed. In comparison, 15% agree, and 9% strongly agree. Student engagement in ODeL is regularly online, primarily through social media or social messaging applications and platforms (Venturino & Hsu, 2022). These platforms have proved to be effective in improving student interaction and meetings, giving students a sense of community (Yeboah & Ewur, 2014; Madge et al., 2019). Alternatively, in a qualitative study on ODeL student engagement, the participants distinctly shared that they used social messaging platforms such as WhatsApp and Telegram for sharing course information, material and help from peers as it is easier to get a response quicker compared to reaching out to tutors or lecturers Zwane & Mudau (2023) indicating that students' communication outside the formal learning platforms is distinguished as informal learning resource connections.

CONCLUSION

This study contributed a comprehensive nexus between endogenous factors within the pedagogical and academic ecosystem with exogenous or external realities that factors beyond the primary stakeholder community and the high-ranking debacle centers around student success have exerted. While the ODeL academic fraternity exuded characteristics of recovery, rebound and resilience within an agile and adaptive institutional complexity, the student support indicated a diverse realization of constraints, impediments and hindrances for decision makers and policy practitioners to pounder. Another observation the study illuminated is that while the turbulent headwinds are transitory, the existential technological context has aggravated the acceleration of a pragmatic and plausible turnkey sustainable and strategic intervention to meet the ever-increasing student experience in the digitization era.

The T&L fraternity is predominantly predicated on accelerating and assimilating existential technologically advanced resources or capabilities, regulating and exhibiting a norm for resource inclusivity, accessibility, diversity, and equitable user application irrespective of their background and societal hierarchy or social capital. ODeL, with its ability to accelerate higher education scalability across geographical, social and economic bounds, especially for the vulnerable, warrants critical and innovative initiatives that implicate the delivery of quality education that can sustain the constant and unpredictable guardrails of modern-day turbulences without severe affecting or compromising efficacious T&L delivery.

Discussions in this study brought to the fore the eminent realities such as the unevenness of information networks, ICT infrastructure, digital technologies for learning and the cross-country constant power and connectivity interruptions, which directly and indirectly affect T&L delivery sustainability. The ODeL institutional policies, plans, systems, programs and processes need to consider these issues when designing assessments and incorporate them in the student support initiatives to avoid adding to an already burdensome environment in which student success pipeline could be accomplished. Having accentuated the potential of ODeL in a turbulent environment while underscoring the significant challenges that must be addressed, there is a strong call for improving infrastructure and connectivity, developing more engaging and interactive online pedagogical methods, and creating more resilient and adaptable assessment methods within our societies. In doing so, we can be a step closer to a sustainable ODeL environment that can navigate through the volatility, uncertainty, complexity, and ambiguity without compromising the quality and integrity of this integral socioeconomic academic commodity.

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